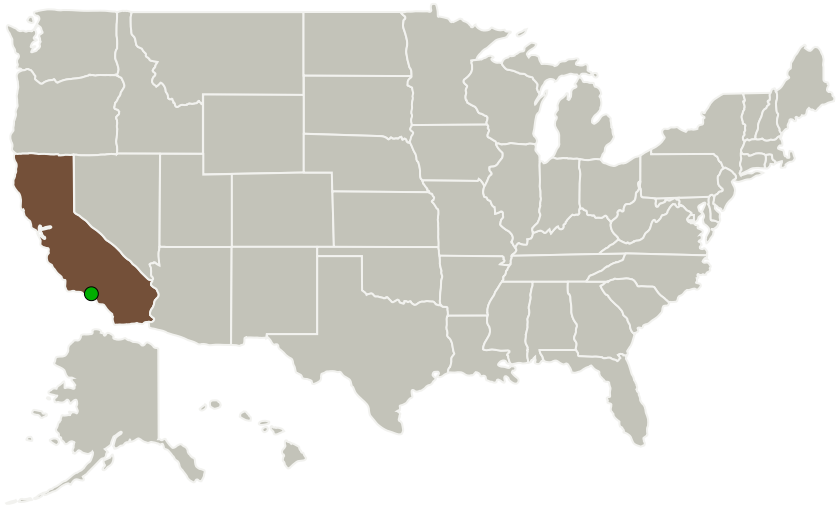
Thermally-Stable High Strain Deployable Structures, Phase I

Completed Technology Project (2011 - 2011)

Project Introduction

The proposed innovation is for the development of a thermally-stable composite made of carbon fibers and elastomeric resin. This combination of materials will allow a composite with higher stiffness and strain compared with materials currently in use for space. The significance of this innovation is that the proposed material will enable more capable deployable structures, minimize complexity, mass, and cost. Specifically the work done in Phase I and Phase II will enable cost effective components and subsystem technologies for flight systems, such as large sunshields and external occulters in Phase III. The objective of this project will be to develop technologies and methods that improve the design, fabrication, modeling, inspection, and testing of composite materials for space deployable structures. This includes methods of testing and modeling/characterization of the material in order to guide its formulation. The characterization of the new elastomeric composite will be accomplished through a series of standardized tests, supported by non-standard tests as required.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
L'Garde, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Tustin, California
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations
California

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138540)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

L'Garde, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Juan M Mejia-ariza

Co-Investigator:

Juan Mejia-ariza

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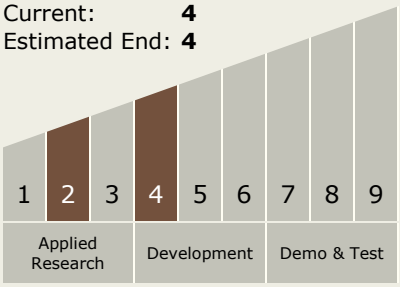
Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.3 Mechanical Systems
    - TX12.3.1 Deployables, Docking, and Interfaces

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System